

## ABSTRACT

This invention relates to electromagnetic wave beam paths, formation of the beam, illumination of programmable electromagnetic wave field vector orientation rotating devices ("PEMFVORD") with an electromagnetic beam, and the technique of projection of the modulated beam. This invention also relates to a unique light path and method of forming the light into a rectangular beam to be used for optical projection systems and, more particularly, in a color and/or black and white liquid crystal device (LCD) projectors that produce high resolution, high brightness and/or three-dimensional images. This invention further relates to a device capable of receiving and displaying two-dimensional and three dimensional images.

## NO.

<u>Use</u>	<u>Description of usage</u>
30	combined polarized beam from source
31	point light source
32	light source
33,	infrared mirror
34	LCD display
35	ultraviolet mirror
36	polarizing beam splitter
37	ultraviolet portion of source beam 55
38	half-wave retarder
39	half-wave retarder
40	Broad band mirror
41	light source reflecting means
42	Broad band mirror
43	collimating lens or means
44	Broad band mirror
45	first lensing surface
46	Broad band mirror
47	polarized separated beam
48	color filters
49	separated polarized beam
50	unpolarized collimated beam of light
51	input polarized beam into LCD
52	P polarized beam
53	reflected beam
54	S polarized beam
55	resultant beam without infrared portion
56	reflected second P-polarized beam
57	source beam without ultraviolet portion

58	separated reflected beam
59	altered polarized beam
60	separated reflected beam
62	left side beam output
63	integrator
64	right side beam output
65	light source reflecting means
66	control means
67	light ray
68	light ray
69	light ray
70	scene
71	second lensing surface
72	left side camera
73	rays from light source
74	right side camera
75	body of integrator
76	left side input to projector
77	light ray
78	right side input to projector
80	red - green/blue splitting mirror
81	projector
82	red mirror/filtering means
84	green - blue splitting mirror
86	blue mirror
87	viewing screen
88	blue mirror/filter
89	quarter-wave retarder
90	mirror/combiner for red/green-blue
92	mirror/combiner for red and green
93	dichroic combiner or splitter
94	coating in X dichroic (oriented for red)

96	coating in X dichroic (oriented for blue)
100	LCD cell or pixel
101	liquid crystal material
103	transparent plate
104	transparent plate
105	spacer for LCD cell
106	spacer for LCD cell
107	sealing element
108	sealing element
109	conductive coating
110	conductive coating
116	first LCD
118	second LCD
120	first altered beam
122	second altered beam
126	second half-wave retarder
128	combined S&P beam
129	Combined S&P beam in elliptical beam
132	red beam
134	green/blue beam
136	red beam block
138	red LCD
140	green LCD
141	Infrared portion of visible light beam
142	blue LCD
144	altered red beam
146	polarizer analyzer
148	projector lens
150	rejection beam block
152	altered green beam
154	green beam
156	blue beam

158	blue beam block
160	altered blue beam
161	beam block absorber
164	laser diodes or leds
166	substrate
170	Single red light source
171	beam expander means
172	Single green light source
174	Single blue light source
175	3D polarization viewing device
176	metallic end pieces
178	Projected beam through lens
180	gas
182	clear plates of glass for fluorescent tubes
184	silver reflector
186	end cap
188	quarter-wave retarder
189	Variable retarder
190	second polarizer analyzer
192	rejection beam-block
194	collimated red beam with 1 polarization
196	collimated green beam with 1 polarization
198	collimated blue beam with 1 polarization
200	1st surface for reflecting polarized beam
201	Electrodes
202	2nd surface for reflecting polarized beam
204	3rd surface for reflecting polarized beam
206	4th surface for reflecting polarized beam
208	5th surface for reflecting polarized beam
210	6th surface for reflecting polarized beam
212	7th surface for reflecting polarized beam
214	8th surface for reflecting polarized beam